



Zero Emission Oven Doors through Advanced Cleaning

6th Annual EuroCoke Summit 2010 - Lisbon

Zero Emission Oven Doors Through Advanced Cleaning



- Advanced Cleaning Solutions – Why?
- Door Cleaning Technologies
- Frame Cleaning Technologies
- Performance Results & Available Gains



Zero Emission Oven Doors Through Advanced Cleaning



ADVANCED CLEANING SOLUTIONS – WHY?

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866



JMH JOHN M
HENDERSON

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866



JMH JOHN M
HENDERSON

Zero Emission Oven Doors Through Advanced Cleaning



- Particulate Matter (PM)
- Carbon Monoxide (CO)
- Sulfur Dioxide (SO₂)
- Hydrogen Sulfide (H₂S)
- Ammonia (NH₃)
- Benzene
- Benzo(a)pyrene (BaP)

Zero Emission Oven Doors Through Advanced Cleaning



Classification of Door Leaks – UK Basis

- Grade 0 – No Leak
- Grade 1 – Minor Leak
- Grade 2 – Significant Leak
- Grade 3 – Severe Leak
- Grade 4 – Extremely Severe Leak

Zero Emission Oven Doors Through Advanced Cleaning



Classification of Door Leaks – UK Basis

➤ Grade 0 – No Leak

No visible emission.

➤ Grade 1 – Minor Leak

Emission of “wispy” smoke from no more than two points of source

➤ Grade 2 – Significant Leak

Emission of smoke from several points or more appreciable trail of smoke from a single point.

Zero Emission Oven Doors Through Advanced Cleaning



Classification of Door Leaks – UK Basis

➤ Grade 3 – Severe Leak

Emission of smoke in a thick stream retaining opacity some distance from source.

➤ Grade 4 – Extremely Severe Leak

Copious smoke emission effecting the working environment of several adjacent ovens or flame likely to cause mechanical deterioration.

Zero Emission Oven Doors Through Advanced Cleaning



Classification of Door Leaks – UK Basis

- Doors are Monitored on a daily basis
- Leakage Performance Calculations performed
- Performance Graphs created
- Historic Graphs used for Trouble Shooting
- Performance Graphs audited by Local EA



Zero Emission Oven Doors Through Advanced Cleaning



DOOR CLEANING TECHNOLOGIES

Zero Emission Oven Doors Through Advanced Cleaning



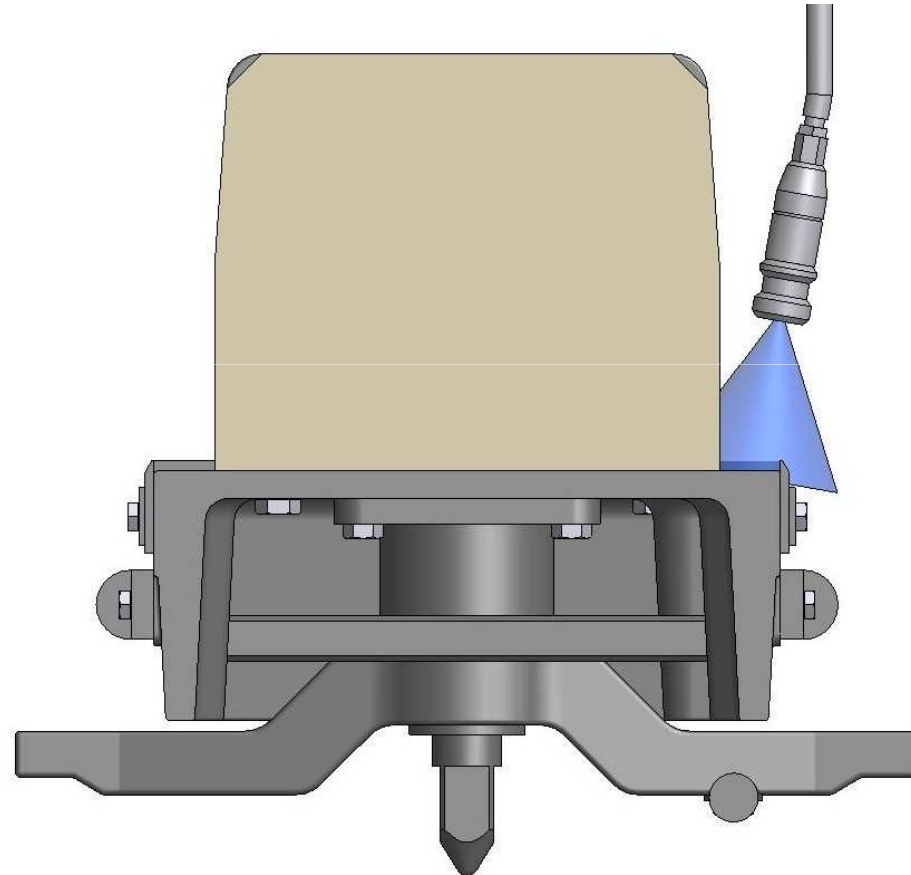
Types of Door Cleaner

- Water Jet Cleaning
- Combined Water & Mechanical Cleaning
- Mechanical Cleaning

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering
Since 1866

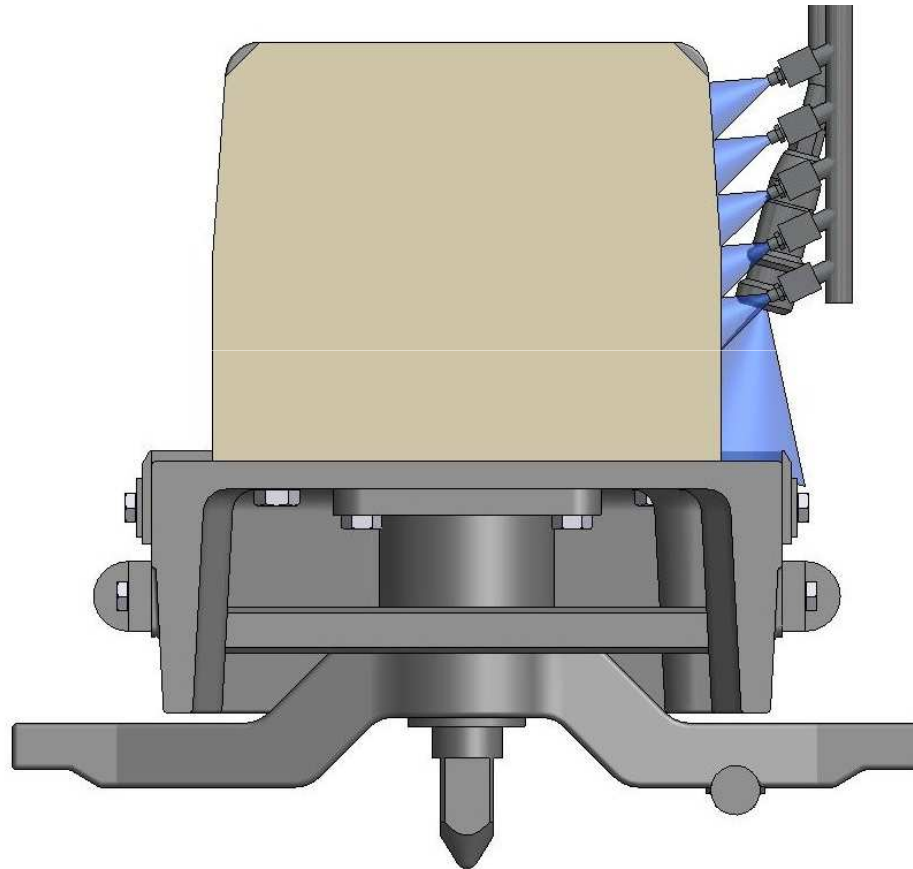
Water Jet Cleaning of Gas Channel



Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866

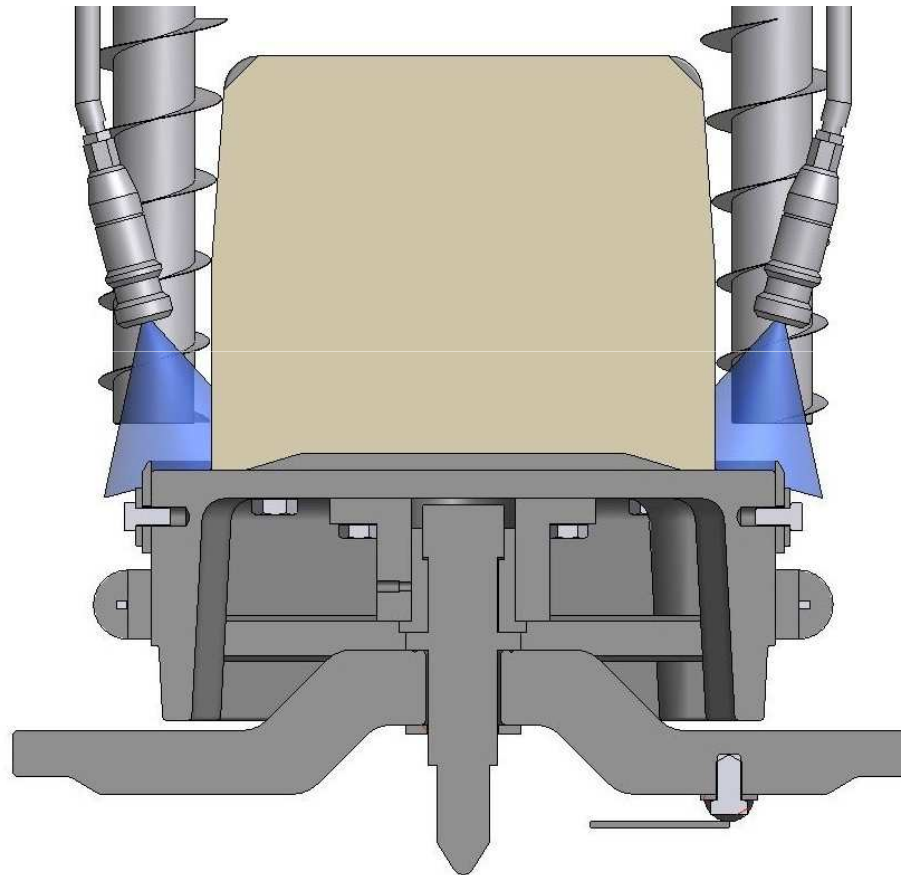
Water Jet Cleaning of Gas Channel & Plug



Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering
Since 1866

Water Jet / Mechanical Cleaning of Gas Channel & Plug

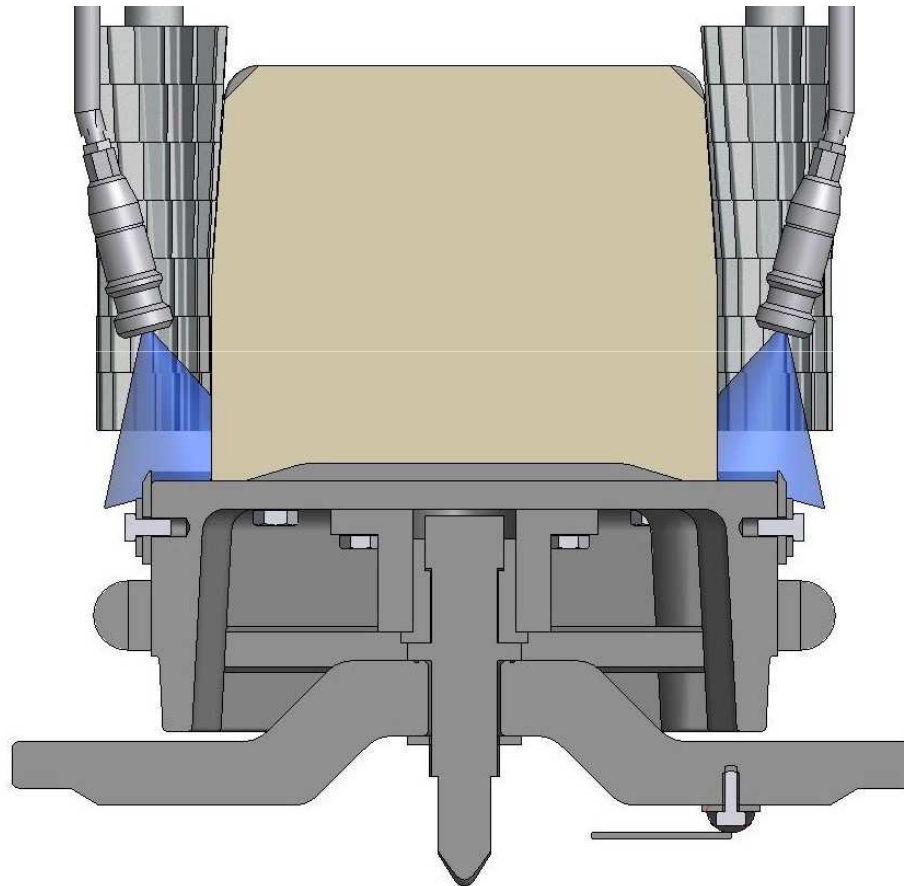


JMH JOHN M
HENDERSON

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866

Water Jet / Mechanical Cleaning of Gas Channel & Plug

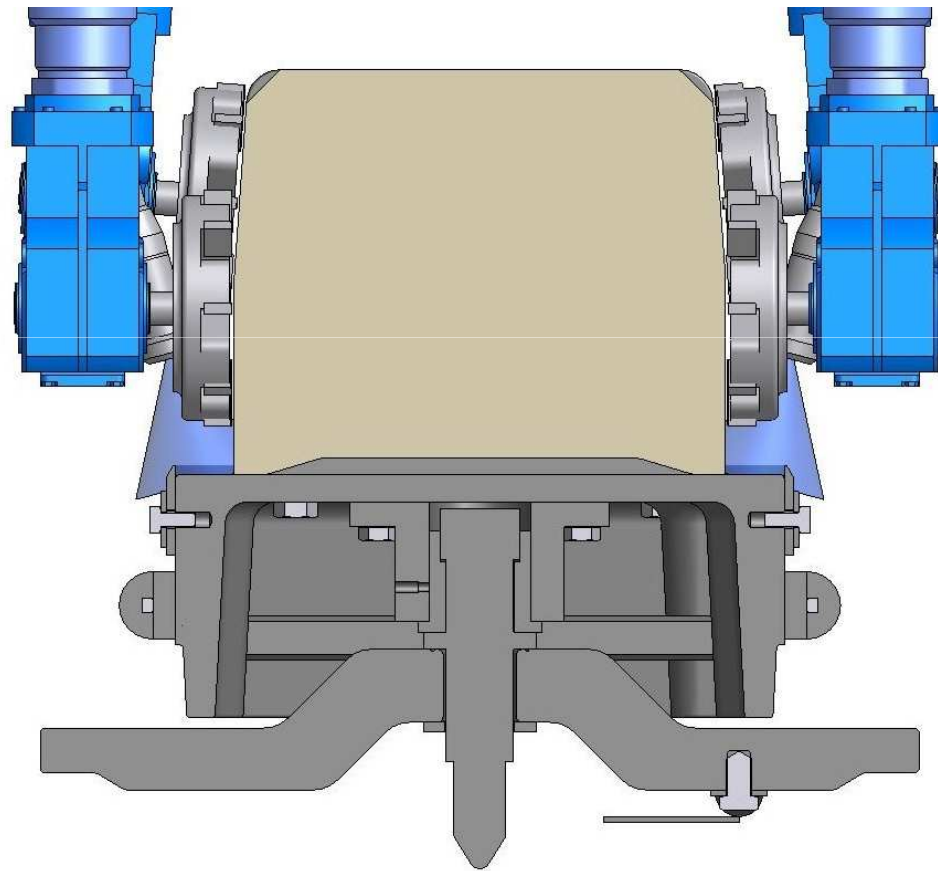


JMH JOHN M
HENDERSON

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866

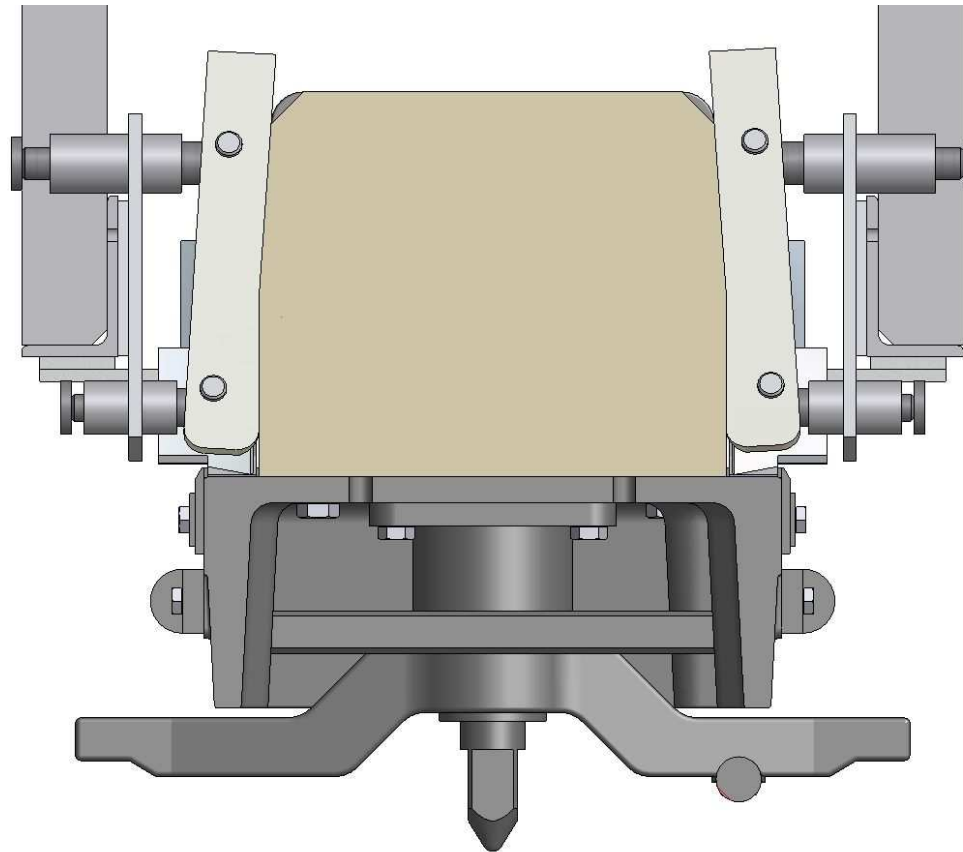
Water Jet / Mechanical Cleaning of Gas Channel & Plug



Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering
Since 1866

Mechanical Cleaning of Gas Channel & Plug





Zero Emission Oven Doors Through Advanced Cleaning

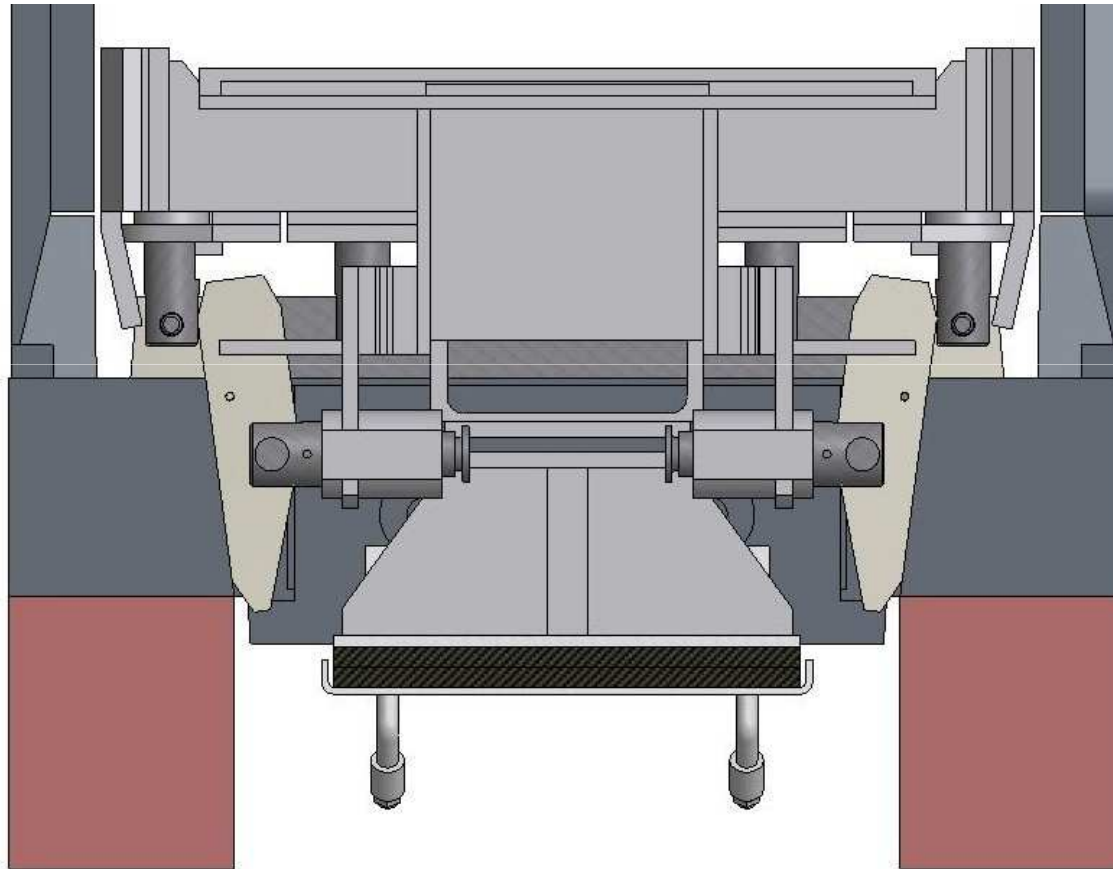


FRAME CLEANING TECHNOLOGIES

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866

Frame Cleaning





Zero Emission Oven Doors Through Advanced Cleaning

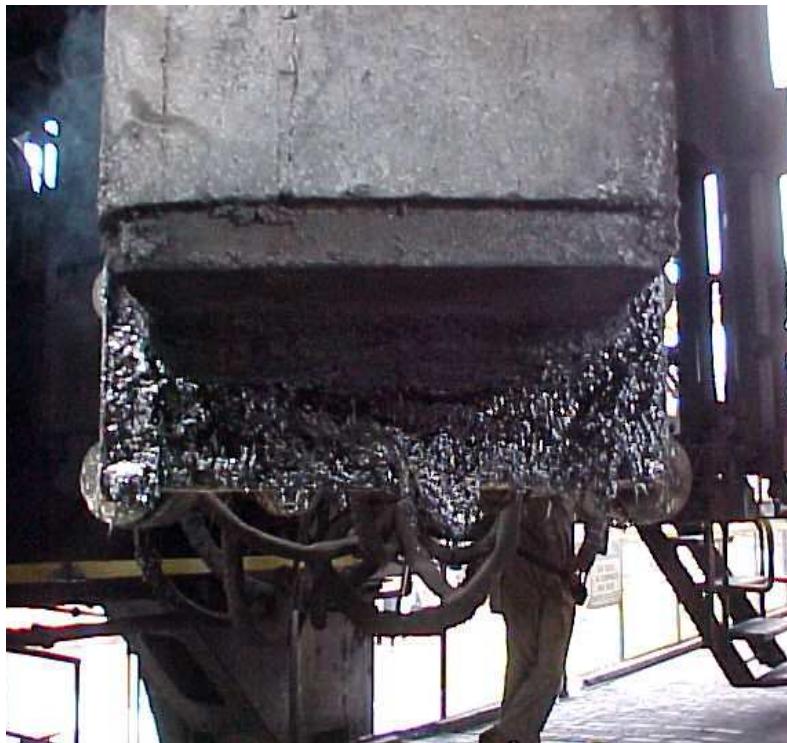


PERFORMANCE RESULTS & AVAILABLE GAINS

Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering
Since 1866

Water Jet Door Cleaning

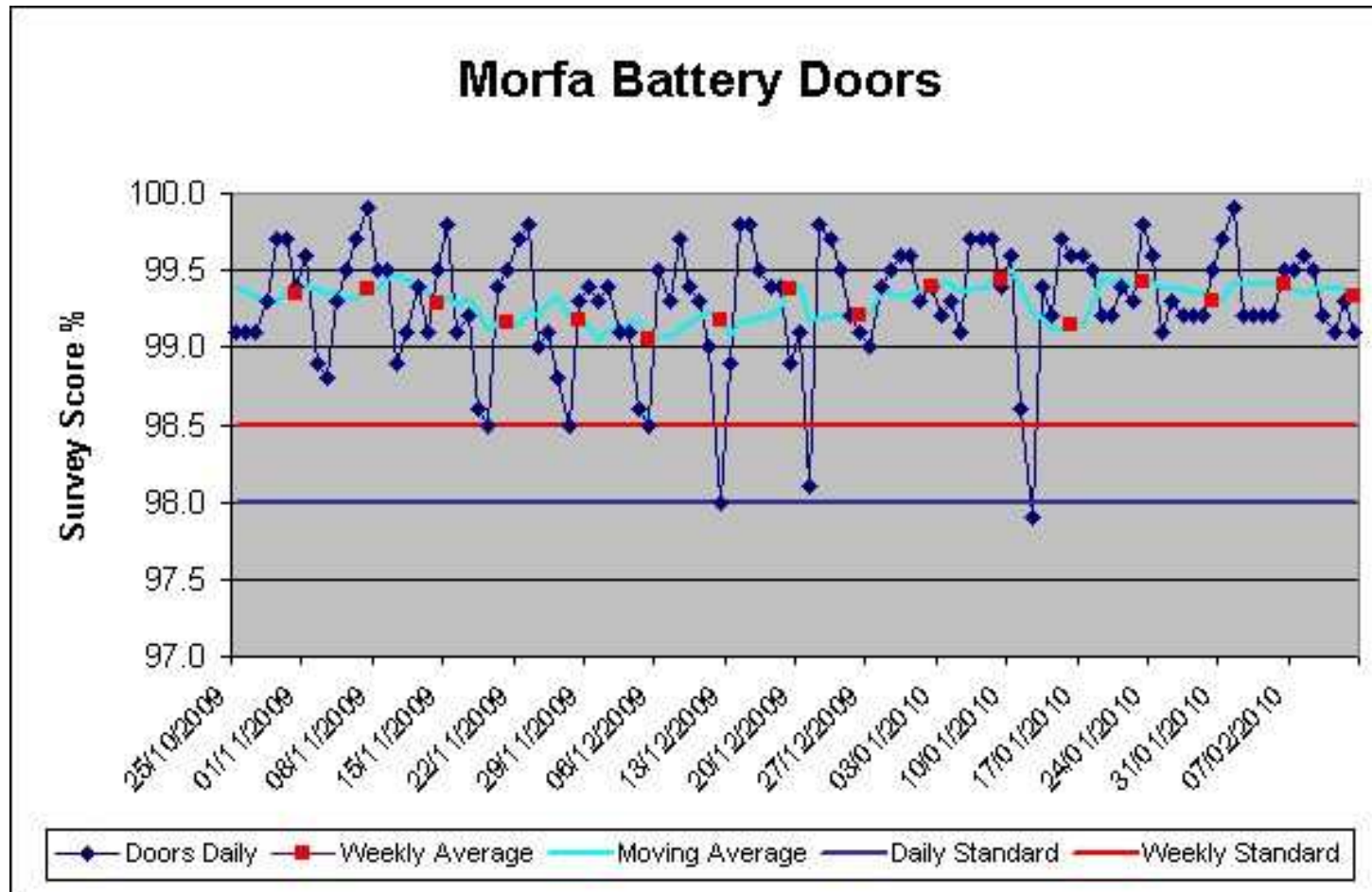


BEFORE CLEANING



AFTER CLEANING

Zero Emission Oven Doors Through Advanced Cleaning



Zero Emission Oven Doors Through Advanced Cleaning

Excellence In Engineering Since
1866



JMH JOHN M
HENDERSON